· In re: Rosenberg et al.

International Appn. No.: PCT/EP03/006109 International Filing Date: June 11, 2003

Page 4

## In the Claims:

1. (Currently Amended) An antenna device (10, 20, 30) for a portable device (1), the antenna device (10, 20, 30) comprising

an antenna loop (11, 21, 31) of conducting material having first and second ends to be connected to radio frequency (RF) circuitry and a ground plane of a <u>printed circuit board</u> (PCB)PCB (16, 26, 36), respectively, the antenna loop being positioned opposite the ground <u>plane</u>; characterized in that the antenna device (10, 20, 30) further comprises and a ground plane extender (17a, 17b, 27a, 27b, 37a, 37b) positioned in the extension of at a first side of the PCB and in a longitudinal extension of the ground plane (16, 26, 36).

- 2. (Currently Amended) The antenna device according to claim 1, wherein the antenna loop comprises first and second connectors (15a, 15b, 25a, 25b, 35a, 35b) provided at a second side of the PCB (16, 26, 36) for connecting configured to connect the first and second ends of the antenna loop (11, 21, 31) to the RF circuitry and the ground plane of the PCB-(16, 26, 36), respectively.
- 3. (Currently Amended) The antenna device according to claim 1-or-2, wherein the antenna loop (11, 21, 31)-further comprises:
- a first portion (12) having a first and a second end, said the first portion (12, 22, 32) extending in a first direction along a third side of the PCB (16, 26, 36), the first end of the first portion being connected to the RF circuitry of the PCB (16, 26, 36);

a second portion (13, 23, 33) having a first and a second end, the first end of the second portion (13, 23, 33) being connected to the second end of the first portion (12, 22, 32), said the second portion extending in a second direction from the third side of the PCB-(16, 26, 36) towards a fourth side thereof, which is opposite said the third side; and

a third portion (14, 24, 34) having a first and a second end, the first end of the third portion (14, 24, 34) being connected to the second end of the second portion (13, 23, 33) and the second end of the third portion (14, 24, 34) being connected to the ground plane of the

In re: Rosenberg et al.

International Appn. No.: PCT/EP03/006109 International Filing Date: June 11, 2003

Page 5

PCB (16, 26, 36), said the third portion (14, 24, 34) extending in the opposite direction of said the first direction along said the fourth side of the PCB (16, 26, 36).

- 4. (Currently Amended) The antenna device according to <u>claim 1</u> any of the previous elaims, wherein the PCB-(16, 26, 36) is a multi-layer PCB having one layer used <u>configured</u> as a dedicated RF ground plane, which also <u>that provides</u> the ground plane of the antenna device-(10, 20, 30).
- 5. (Currently Amended) The antenna device according to <u>claim 1 any of the previous</u> elaims, wherein the <u>antenna ground plane</u> extender is at least one battery casing (17a, 17b, 27a, 27b, 37a, 37b) of a battery cell, the at least one battery casing being positioned in the <u>longitudinal having a position to serve as an extension of the ground plane of the PCB (16, 26, 36)</u>.
- 6. (Currently Amended) The antenna device according to <u>claim 1</u> any of the previous elaims, wherein the antenna loop (11, 21, 31) is positioned opposite a first or a second surface of the PCB-(16, 26, 36).
- 7. (Currently Amended) The antenna device according to <u>claim 1 any of the previous</u> elaims, wherein the <u>conductive conducting</u> material of the antenna loop (11, 21, 31) is metal.
- 8. (Currently Amended) The antenna according to claim 6, wherein the antenna loop (11, 21, 31) is <u>further comprising</u> a U-shaped dielectric having the antenna <u>loop shape</u> etched into the dielectric.
- 9. (Currently Amended) The antenna device according to claim 44 or 5, wherein the antenna loop (11, 21, 31) is provided inside the PCB (16, 26, 36).
- 10. (Currently Amended) The antenna device according to <u>claim 1</u> any of the previous elaims, wherein the PCB further comprises a second side opposite the first side, a

· In re: Rosenberg et al.

International Appn. No.: PCT/EP03/006109 International Filing Date: June 11, 2003

Page 6

third side adjacent the first and second sides, and a fourth side opposite the third side, the antenna device further comprising a bezel (28, 38), which is connected to the PCB[[,]] that extends from the third side of the PCB (26, 36) towards the fourth side of the PCB, and/or bezel flanges (39a, 39b) connected to said the ground plane and extending extends along the third and fourth sides of the PCB.

11. (Currently Amended) A multi-layer printed circuit board (PCB) comprising:, characterized by an antenna device according to any of the claims 1-10.

radio frequency (RF) circuitry and a ground plane on the PCB; an antenna device connected to the PCB, the antenna device comprising:

an antenna loop of conducting material having first and second ends connected to the radio frequency (RF) circuitry and the ground plane of the PCB, respectively, the antenna loop being positioned opposite the ground plane; and a ground plane extender positioned at a first side of the PCB and in a longitudinal extension of the ground plane.

12. (Currently Amended) A portable communication device <u>comprising</u>:, eharacterized by an antenna according to any of the claims 1–10.

a printed circuit board (PCB) comprising radio frequency (RF) circuitry and a ground plane;

an antenna device connected to the PCB, the antenna device comprising:

an antenna loop of conducting material having first and second ends connected to the radio frequency (RF) circuitry and the ground plane of the PCB, respectively, the antenna loop being positioned opposite the ground plane; and a ground plane extender positioned at a first side of the PCB and in a longitudinal extension of the ground plane.

- 13. (Currently Amended) The portable communication device according to claim 12, wherein the <u>portable communication device apparatus</u> is a headset-(1).
- 14. (New) The loop antenna device according to claim 1, wherein the ground plane extender is a battery casing.